

**CITY OF NEWTON**

**SELF INSURED  
WORKERS COMPENSATION  
FUNDING STUDY**

**AS OF JUNE 30, 2005**

**NOVEMBER 1, 2005**

**FINANCIAL RISK ANALYSTS**



## FINANCIAL RISK ANALYSTS, LLC

Actuaries • Insurance Consultants

November 1, 2005


Mr. David C. Wilkinson  
Comptroller  
City of Newton  
Commonwealth Avenue and Walnut St.  
Newton Centre, MA 02159

Dear David:

Enclosed you will find our report regarding the City's self funded Workers Compensation program as of June 30, 2005. Projected ultimate losses are very consistent with last year's results.

It has been a pleasure being of service again to the City. Please feel free to contact me if you have any questions regarding this report.

Sincerely,



Mark J. Sobel, FCAS, MAAA  
Managing Principal

MJS/cv

CITY OF NEWTON|

TABLE OF CONTENTS|

	<u>Page</u>
INTRODUCTION.....	2
CONDITIONS AND LIMITATIONS .....	3
DISTRIBUTION AND USE.....	6
SUMMARY AND CONCLUSIONS .....	7
ANALYSIS .....	9
EXHIBITS	

# CITY OF NEWTON

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## INTRODUCTION

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Financial Risk Analysts, LLC has been retained by the City of Newton (the City) to provide actuarial services regarding its self funded Workers Compensation program. The City has been fully self-funded on a pay as you go basis since at least 1956. Claims are handled by the City's Personnel Department which administers and processes benefits payments. Excess Workers Compensation coverage is not purchased and the City therefore assumes unlimited exposure to loss.

Financial Risk Analysts has been retained to provide indicated liability levels for the City's self funded Workers Compensation losses as of June 30, 2005. In addition, we have been requested to provide an indicated contribution to the self insurance fund for the one year period beginning July 1, 2005.

# CITY OF NEWTON

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## CONDITIONS AND LIMITATIONS

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### *GENERAL*

Throughout this report and its exhibits the term "loss" is used to refer to both losses and allocated loss adjustment expenses (ALAE). ALAE provides for all expenses associated with the handling and settling of claims that can be directly attributable to a particular claim. Such expenses typically include claim handling fees, legal fees, investigatory expenses, medical reports, expert witness fees, rehabilitation costs, etc. No other costs associated with the City's self insured Workers Compensation program other than losses and ALAE have been considered in this report.

### *DATA*

In this report we have used historical data and other information provided to us by the City of Newton. This data consist primarily of historical loss and exposure information for the City. In addition we have relied on various oral representations made to us by employees of the City. Although the data supplied have been reviewed for purposes of reasonability, we have not independently audited or verified this information and we assume to be accurate and complete.

The results of our analysis will be contingent upon the reliability of the information supplied to us and such reliability is the responsibility of the City. Should the City become aware of any significant discrepancies in the data reported to us we should be notified of such discrepancies and this report will be amended, if necessary.

We were provided with the following data:

- Accident year losses paid during fiscal years 1988-2005 for General Government employees. Losses paid prior to 1988 were not provided to us. The term "accident year" refers to the year in which the accident leading to the injury took place. "Losses" refers to benefits paid for either indemnity (lost wages) or medical benefits.

## CITY OF NEWTON

- Data and information for long term disability and death cases. These are referred to as 'pension cases'.
- Covered payroll information by class code for Fiscal Years 1994-2005 and estimated payroll for fiscal year 2006.

We have made various assumptions to adjust for any missing or incomplete data. The City should recognize, however, that given the considerable breadth and scope of its self funded program, the relatively limited data available increases the uncertainty associated with this actuarial study. The City does not fully establish case reserves for reported Workers Compensation cases. We strongly encourage the City to establish procedures whereby such reserves are set up for all claims. This will considerably increase the accuracy of future actuarial studies and should also improve the City's ability to manage the self insurance program.

In performing our analysis we also relied on data and information obtained from insurance industry sources to supplement the actual historical data provided to us by the City. Such data include loss development patterns, loss trend factors, loss payout patterns, and benefit level changes for Massachusetts Workers Compensation.

### ***UNCERTAINTY***

Actuarial projections, by their nature, are estimates of future contingent events that cannot be known with certainty. The ultimate liability of the City for its retained losses will be subject to events that have yet to occur such as the size of future Workers Compensation awards, future economic conditions, and the propensity for workers to file claims for Workers Compensation. No assumptions have been made in this report as to any extraordinary changes in the legal, social, or judicial environment that might affect future losses.

While we believe the results presented in this report are reasonable and reflect the use of accepted actuarial principles and standards of practice, it is possible that actual future loss results of the City will differ, perhaps materially, from those projected herein. In particular, as noted

## CITY OF NEWTON

previously, the lack of complete historical loss information and case reserve estimates increases the degree of uncertainty in our loss estimates. In addition, since excess coverage is not purchased, the City is exposed to unlimited losses, which further increases the uncertainty associated with our projections. Nothing in this report should be construed as a warranty or guarantee as to the adequacy of the liability estimates contained herein.

### ***ASSET QUALITY/INVESTMENT INCOME***

No attempt has been made to evaluate the quality of the invested or non invested assets supporting the loss and ALAE liabilities of the City. It has been assumed that the City's loss and ALAE liabilities are supported by creditworthy assets with minimal risk of default and/or capital loss.

In this report we present the pension case losses on a discounted basis. This is a generally accepted approach for purposes of establishing liabilities for claims with fixed and determinable payment levels. Discounted reserves reflect the time value of money and represent the present value as of June 30, 2005 of the expected future loss payments.

For purposes of discounting the pension case loss estimates we used an annual interest rate of 5.5%, as selected by the City. It is important to note that interest/appreciation earned on the assets supporting these liabilities must be credited to the self insurance fund. Alternatively, future years' contributions to the self insurance fund can be increased to offset the interest amortization. Financial Risk Analysts, LLC renders no opinion on the reasonability of the use of a 5.5% rate of return or on the ability of the City to earn at least 5.5% on the invested assets supporting the self insurance liabilities.

# CITY OF NEWTON

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## **DISTRIBUTION AND USE**

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This report is provided solely for the use of the City of Newton in evaluating its self funded Workers Compensation liabilities as of June 30, 2005. A copy of this report may also be provided to the City's auditors with the proviso that the report is copied in its entirety and that each party receiving a copy of this report agrees to not distribute the report to any other third party.

Distribution of this report to parties other than those referenced above is not authorized without the express written consent of Financial Risk Analysts, LLC.



# CITY OF NEWTON

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## SUMMARY AND CONCLUSIONS

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### Indicated Liabilities as Of June 30, 2005

Exhibit 1.1 presents the results of our analysis by type of loss. Based upon our analysis we are recommending the following liability for expected losses as of June

<b>General Government Workers Compensation Self Insured Liability As of June 30, 2005</b>	
Other than Pension Cases	\$1,025,936
<u>Pension Cases</u>	<u>\$4,836,237</u>
<b>Total Liability</b>	<b>\$5,862,173</b>

The liability indication provided above is intended to provide for all General Government Workers Compensation losses incurred by the City from inception of its self funded program through June 30, 2005 under the terms and conditions of its statutory obligations.

The above liability provides for what is commonly known as "expected losses." Expected losses represent the best estimate of the City's outstanding losses as of June 30, 2005 and reflect a statistical confidence level of approximately 53%. This means that actual losses will be less than or equal to expected losses.

Any actuarial estimate of loss reserves is subject to inherent variation. The best estimate of losses to be incurred, actual losses in any given year can be expected to differ from expected losses. Funding at expected loss levels will entail a degree of risk (47%) that reserve levels will be exceeded. If the City wishes to fund at a level with a higher degree of statistical confidence, i.e. with a lower probability of reserves being inadequate, it may wish to fund at a higher loss level than that indicated by expected losses.

## CITY OF NEWTON

The liabilities indicated above include a provision for the following

- Losses on claims that have occurred but that are not yet known and not yet reported to the City. These claims are part of the reserve provision known as *IBNR* or *Incurred But Not Reported*.
- Future loss development on known, recorded claims. This is also considered a part of the IBNR reserve.

### **Indicated Funding For Fiscal Year 2006**

As displayed on Exhibit .2 we indicate the City fund \$905,737 for expected losses occurring during the period July , 2005 to June 30, 2006. The indicated funding level is based on estimated payroll as shown on Exhibit .2 of approximately \$37.0 million for General Government employees. The fiscal year 2006 funding is intended to provide solely for losses occurring during the period July 1, 2005-2006. It does not include a provision to amortize any surplus or deficit in the fund balance as of June 30, 2005. The City may wish to make an adjustment to the extent a surplus or deficit exists.

As shown on Exhibit 1.2, we are projecting an overall pure premium of \$2.44 for fiscal year 2006. This is the same pure premium as last year. A pure premium is defined as expected losses per unit of exposure. Losses are defined as previously noted. For Workers Compensation the standard exposure unit is \$100 of payroll. No other costs or expenses associated with the operation of the self funded program are included in our estimates.

# CITY OF NEWTON

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## ANALYSIS

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### BACKGROUND INFORMATION

This analysis reviews the City of Newton's self funded Workers Compensation program as of June 30, 2005. The City has been self funded for a considerable period of time. The actual inception date is unknown. The data provided to us include claims with date of loss going back to 1956. Our analysis therefore includes loss estimates for accident years 1956 through 2005. We have assumed no liability exists for years prior to 1956.

As mentioned previously, the data provided to us does not include any payments made on claims closed prior to 1988 nor does it include payments made prior to 1988 on all other claims.

### ASSUMPTIONS AND METHODOLOGY

#### **1. Indicated Outstanding Losses**

We have used two commonly applied actuarial methodologies to estimate the City's outstanding indemnity losses. For medical only claims, only the paid loss development method has been used. From the results of these approaches final loss selections were made. The following is a detailed description of each of the methodologies used.

- **Paid Loss Development Method**

The paid loss development method is a method in which paid losses are projected to an ultimate level based on historical development patterns. An analysis of the changes in accident year incurred losses between various valuation points provides a basis for estimating future changes. Paid losses are projected to an ultimate level based on historical paid loss development patterns. This method assumes that loss settlement and payment patterns have remained reasonably stable over time.

## CITY OF NEWTON

Paid loss development patterns have been derived from the City's own historical loss experience supplemented with insurance industry experience. Loss development factors are shown on Exhibits 5.1-5.3.

The actual historical loss experience of the City is shown on Exhibits 5.1-5.3. Because medical only claims are paid and closed in a relatively short period of time, we have been able to use the payment history provided to us by the City as the basis for making medical only claims projections.

For claims with indemnity experience displayed on Exhibits 5.1-.2, we have had to adjust the losses to reflect the missing payments made prior to 1988. The losses have been adjusted using historical experience for the City and the industry. Adjusted losses are presented on Exhibits 5.1 and 5.2 and these are used for purposes of selecting loss development factors.

- **Bornhuetter-Ferguson Paid Loss Method**

This approach is essentially a credibility weighted average of two other reserving methods; the paid loss development method and the expected loss method. The expected loss method simply sets the indicated reserve equal to the difference between expected losses and paid losses. It produces very stable results but fails to incorporate actual results as they emerge.

The Bornhuetter-Ferguson method blends the paid loss development method and the expected loss method by splitting expected losses into two distinct pieces; expected paid losses and expected unpaid losses. As an accident year matures, the expected paid losses are replaced with actual reported losses plus expected unreported losses. Thus, as the year matures, the initial expected incurred loss estimate becomes less important while the actual paid loss experience increases in importance. In order to use this method, one must estimate both the initial expected losses and the expected loss payment pattern.

For fiscal years 2004 and 2005 initial expected indemnity losses are derived on Exhibit 3.1. They are based on results for the more recent years projected to current benefit and trend levels. Years prior to 2004 have been left unchanged from our previous analysis. Expected

## CITY OF NEWTON

loss payment patterns are developed from the paid loss development factors on Exhibits 5.1 and 5.2.

We relied on the results of the paid loss development method for fiscal years prior to 1988. method will be the most reliable for the earlier years due to the difficulty in estimating historical payroll for years prior to 1988. Also, these years will be more mature, and hence less volatile than the recent years, which is a further factor in favor of the loss development approach. Results from this method appear on Exhibits 2.2 and 2.3.

For the more recent years, 1988-2005, we relied on the Bornhuetter-Ferguson approach. more recent years will be the most uncertain ones and will exhibit the greatest volatility. Use of the Bornhuetter-Ferguson approach will dampen this volatility and should produce more stable and reliable results. The results of this method appear on Exhibit 1

Note that for both methods adjusted paid losses rather than actual paid losses have been used. Our results therefore produce a valid estimate of ultimate losses for a particular year even though payments made prior to 1988 are missing.

### Pension Cases

Pension cases have been analyzed separately on Exhibit 2.4. US Life Tables 2001 Vital Statistics for Males and Females have been used to determine annuity values for these claims using a 5.5% annual rate of interest. Amortizing such claims for mortality and interest is a common practice when establishing liabilities for these types of claims.

It has been assumed for the permanent total and death claims that benefits will be payable for life. For the temporary disability claims it has been assumed that benefits will be paid for the statutory maximum eleven years.

Effective July , 1999 the City elected to opt out of the Massachusetts Workers Compensation Trust Fund. As a result the City's liability for pension claims increased significantly. Prior to July , 1999, the City's net liability for pension claims was limited to the base benefit for each

## CITY OF NEWTON

claim. The base benefit is the benefit established at the time of injury. It is a function of the injured worker's salary at the time of injury.

Benefits for pension claims are subject to annual cost of living adjustments. As a participant in the Trust Fund the City was not responsible for paying cost of living adjustments. By opting out the City is now responsible for paying a benefit equal to the initial base benefit plus the accumulated cost of living adjustments. In addition, the City will be responsible for paying future cost of living adjustments. We used a 2.2% annual cost of living adjustment in the pension claim calculation. Offsetting this somewhat is the fact that the City will no longer be subject to assessment by the Trust Fund.

### **2. Fiscal Year 2006 Funding**

Exhibit 1.2 displays recommended funding separately for non-pension indemnity and medical claims for the July 1, 2005-2006 period. Funding is determined by multiplying the pure premium in column (1) by the covered payroll in column (2). The City may wish to adjust the indicated funding if actual payroll amounts are different from those displayed on Exhibit 2. A provision for pension claims has also been included based on the City's historical experience for these types of claims.

Based on the payroll data provided to us, we are indicating \$905,737 for General Government employees. Overall, our analysis produces indicated funding of \$2.44 per \$100 of payroll for General Government employees. This consists of \$1.90 for non-pension indemnity claims, \$0.22 for medical only claims, and \$0.32 for pension claims.

# CITY OF NEWTON

Exhibit 1.1

## WORKERS COMPENSATION INDICATED LIABILITY AS OF JUNE 30, 2005 SUMMARY OF RESULTS

Indicated Liability As of June 30, 2005	
GENERAL GOVERNMENT	
A. Other Than Pension Claims	\$1,025,936
B. Pension Claims	\$4,836,237
C. Total	<u>\$5,862,173</u>

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- A. Exhibits 2.1 and 2.2
  - B. Exhibit 2.3

## CITY OF NEWTON

Exhibit 1.2

### WORKERS COMPENSATION INDICATED FUNDING FISCAL YEAR 2006

	<u>Expected Loss Cost</u> (1)	<u>Exposure</u> (2)	<u>Expected Losses</u> (3)=(1)x(2)
<u>Non-Pension Claims</u>			
Indemnity	\$1.90	\$370,465	703,884
<u>Medical</u>	<u>\$0.22</u>	\$370,465	<u>81,502</u>
Total	\$2.12		785,386
Pension Claims			120,351
TOTAL	\$2.44		905,737

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(1) Exhibits 3.1 and 3.2  
(2) Exhibit 6



## CITY OF NEWTON

WORKERS COMPENSATION  
INDEMNITY  
INDICATED OUTSTANDING LOSSES  
FISCAL YEARS 1988-2005

Fiscal Year (1)	Exposure (2)	Initial Expected Pure Premium (3)	Initial Expected Losses (4)=(2)x(3)	Expected Percent of Losses Paid (5)	Paid Losses	
					Actual (6)	Expected (7)=(4)x(5)
1988	\$207,265	\$4.90	\$1,015,599	100.0%	731,803	\$1,015,599
1989	217,129	5.16	1,120,386	100.0%	543,317	1,120,386
1990	220,084	5.39	1,186,253	100.0%	403,358	1,186,253
1991	222,813	5.00	1,114,065	100.0%	1,043,766	1,114,065
1992	226,774	4.63	1,049,964	99.9%	372,200	1,048,914
1993	233,157	4.74	1,105,164	99.8%	290,080	1,102,954
1994	253,882	4.22	1,071,382	99.7%	356,071	1,068,168
1995	256,823	4.41	1,132,589	99.6%	482,406	1,128,059
1996	270,263	4.04	1,091,863	99.5%	272,140	1,086,404
1997	282,380	2.58	728,540	99.3%	803,013	723,440
1998	287,177	2.73	783,993	98.8%	418,525	774,585
1999	309,695	2.56	792,819	97.8%	272,004	775,377
2000	314,406	1.85	581,651	96.4%	672,162	560,712
2001	322,083	1.89	608,737	94.1%	529,022	572,822
2002	354,569	1.80	638,224	89.6%	555,910	571,849
2003	362,190	1.94	702,649	79.6%	477,403	559,309
2004	362,318	1.85	670,288	65.0%	446,143	435,687
2005	365,553	1.87	683,584	34.1%	224,297	233,102
Total	\$5,068,561		\$16,077,750		\$8,893,620	\$15,077,685

Fiscal Year (1)	Expected Percent of Losses Unpaid (8)=1.0-(5)	Expected Unpaid Losses (9)=(8)x(4)	Indicated Ultimate Losses (10)=(6)+(9)	Indicated Ultimate Pure Premium (11)=(10)/(2)
1988	0.0%	\$0	\$731,803	\$3.53
1989	0.0%	0	543,317	2.50
1990	0.0%	0	403,358	1.83
1991	0.0%	0	1,043,766	4.68
1992	0.1%	1,050	373,250	1.65
1993	0.2%	2,210	292,290	1.25
1994	0.3%	3,214	359,285	1.42
1995	0.4%	4,530	486,936	1.90
1996	0.5%	5,459	277,599	1.03
1997	0.7%	5,100	808,113	2.86
1998	1.2%	9,408	427,933	1.49
1999	2.2%	17,442	289,446	0.93
2000	3.6%	20,939	693,101	2.20
2001	5.9%	35,915	564,937	1.75
2002	10.4%	66,375	622,285	1.76
2003	20.4%	143,340	620,743	1.71
2004	35.0%	234,601	680,744	1.88
2005	65.9%	450,482	674,779	1.85
Total		\$1,000,065	\$9,893,685	\$1.95

(2) Exhibit 6

(3) Exhibit 3.1 for 2004 and 2005. Prior years from 6/30/04 analysis.

(5) Reciprocal of cumulative factors from Exhibits 5.1 and 5.2.

(6) Exhibits 5.1 and 5.2

# CITY OF NEWTON

Exhibit 2.2

## WORKERS COMPENSATION MEDICAL ONLY INDICATED OUTSTANDING LOSSES

<u>Fiscal Year</u> (1)	<u>Paid Losses</u> (2)	<u>Development Factor</u> (3)	<u>Indicated Ultimate Losses</u> (4)=(2)x(3)	<u>Indicated Outstanding Losses</u> (5)=(4)-(2)
1992	\$50,185	1.000	\$50,185	\$0
1993	55,048	1.000	55,048	0
1994	45,547	1.000	45,547	0
1995	30,253	1.000	30,253	0
1996	38,350	1.000	38,350	0
1997	52,993	1.000	52,993	0
1998	22,036	1.000	22,036	0
1999	26,164	1.000	26,164	0
2000	31,244	1.000	31,244	0
2001	52,561	1.000	52,561	0
2002	98,645	1.001	98,744	99
2003	48,174	1.021	49,186	1,012
2004	83,416	1.031	86,002	2,586
2005	35,535	1.624	57,709	22,174
TOTAL	\$670,151		\$696,022	\$25,871

(2), (3) Exhibit 5.3

## CITY OF NEWTON

Exhibit 2.3

WORKERS COMPENSATION  
PENSION CLAIMS**Permanent Total Disability Claims**

<u>Claimant Name</u> (1)	<u>Sex</u> (2)	<u>Date Of Birth</u> (3)	<u>Nearest Age</u> (4)	<u>Net Weekly Benefit</u> (5)	<u>Annuity Factor</u> (6)	<u>Present Value Of Benefit</u> (7)
Brennan, Lawrence	M	12/29/51	54	\$658.57	17.028	\$583,135
Forte, Salvatore	M	08/19/32	73	\$767.15	9.130	364,212
Gentile, Joseph	M	08/24/25	80	\$758.25	6.539	257,826
Hayes, Thomas	M	08/27/49	56	\$911.90	16.200	768,185
Kelly, Stephen	M	12/07/27	78	\$909.06	7.239	342,196
Machain, Eugene	M	12/05/36	69	\$525.91	10.747	293,902
Marchand, Kathleen	F	07/02/21	84	\$610.85	6.217	197,478
McMahon, Robert	M	09/14/44	61	\$890.42	14.104	653,041
Piselli, Lawrence	M	10/03/26	79	\$793.49	6.883	284,003
<b>TOTAL</b>						<b>\$3,743,978</b>

**Widow Claims**

<u>Claimant Name</u> (1)	<u>Sex</u> (2)	<u>Date Of Birth</u> (3)	<u>Nearest Age</u> (4)	<u>Net Weekly Benefit</u> (5)	<u>Annuity Factor</u> (6)	<u>Present Value Of Benefit</u> (7)
Adams, Barbara	F	12/03/38	67	\$643.10	13.349	446,407
Cardarelli, Catherine	F	08/07/48	57	\$564.00	17.634	517,170
Terenzio, Anna	F	11/06/24	81	\$336.78	7.348	128,682
<b>TOTAL</b>						<b>\$1,092,259</b>

**GRAND TOTAL PENSION CASES****\$4,836,237**

# CITY OF NEWTON

Exhibit 3.1

## WORKERS COMPENSATION INDEMNITY PROJECTED PURE PREMIUMS

Fiscal Year (1)	Selected Ultimate Losses (2)	Exposure (3)	Developed Pure Premium (4)=(2)/(3)	Benefit Level Adjust. Factor (5)	Trend Factor To 1/1/06 (6)	On Level Pure Premium (7)
1999	277,988	309,695	0.90	1.082	1.042	1.01
2000	697,032	314,406	2.22	1.064	1.036	2.45
2001	562,350	322,083	1.75	1.036	1.030	1.87
2002	620,396	354,569	1.75	1.017	1.024	1.82
2003	599,618	362,190	1.66	1.015	1.018	1.71
2004	686,614	362,318	1.90	1.015	1.012	1.95
2005	657,639	365,553	1.80	1.007	1.006	1.82
8. MEAN						1.80
9. LATEST 5						1.83
10. LATEST 3						1.83
11. BEST 3						1.84
12. SELECTED						1.90
				(13)	(14)	(15)
				2006 SELECTED	ON LEVEL FACTOR	TRENDED ON LEVEL
FORECASTED PURE PREMIUM						
2004				1.90	1.027	1.85
2005				1.90	1.014	1.87
2006				1.90	1.000	1.90

(2) Exhibit 4.1

(3) Exhibit 6

(5) Based on Massachusetts benefit level changes

(6) 0.6% annual trend based on 2005 WCRI MA filing

(7) (4) x (5) x (6)

(14) (5) x (6)

(15) (13)/(14)

## CITY OF NEWTON

Exhibit 3.2

WORKERS COMPENSATION  
 MEDICAL ONLY  
 PROJECTED PURE PREMIUMS

Fiscal Year (1)	Selected Ultimate Losses (2)	Exposure (3)	Developed Pure Premium (4)=(2)/(3)	Benefit Level Adjust. Factor (5)	Trend Factor To 1/1/06 (6)	On Level Pure Premium (7)
1999	26,164	309,695	0.08	1.000	1.133	0.09
2000	31,244	314,406	0.10	1.000	1.113	0.11
2001	52,561	322,083	0.16	1.000	1.093	0.17
2002	98,744	354,569	0.28	1.000	1.074	0.30
2003	49,186	362,190	0.14	1.000	1.055	0.15
2004	86,002	362,318	0.24	1.000	1.036	0.25
2005	57,709	365,553	0.16	1.000	1.018	0.16
8. MEAN						0.18
9. LATEST 5						0.21
10. LATEST 3						0.19
11. BEST 3						0.19
12. SELECTED						0.22
				(13)	(14)	(15)
				2006 SELECTED	ON LEVEL FACTOR	TRENDED ON LEVEL
FORECASTED PURE PREMIUM 2006				0.22	1.000	0.22

(2) Exhibit 4.2

(3) Exhibit 6

(5) Based on Massachusetts benefit level changes

(6) 1.8% annual trend based on 2005 WCRI MA filing

(7) (4) x (5) x (6)

(14) (5) x (6)

(15) (13)/(14)

# CITY OF NEWTON

Exhibit 4.1

## WORKERS COMPENSATION INDEMNITY PROJECTED ULTIMATE LOSSES

Fiscal Year (1)	Paid Losses (2)	Paid LDF (3)	Projected Ultimate Losses (4)=(2)x(3)
1998	418,525	1.012	423,547
1999	272,004	1.022	277,988
2000	672,162	1.037	697,032
2001	529,022	1.063	562,350
2002	555,910	1.116	620,396
2003	477,403	1.256	599,618
2004	446,143	1.539	686,614
2005	224,297	2.932	657,639
TOTAL	3,595,466		4,525,184

(2),(3) Exhibit 5.1

# CITY OF NEWTON

Exhibit 4.2

## WORKERS COMPENSATION MEDICAL ONLY PROJECTED ULTIMATE LOSSES

Fiscal Year (1)	Paid <u>Losses</u> (2)	Paid <u>LDF</u> (3)	Projected Ultimate <u>Losses</u> (4)=(2)x(3)
1998	22,036	1.000	22,036
1999	26,164	1.000	26,164
2000	31,244	1.000	31,244
2001	52,561	1.000	52,561
2002	98,645	1.001	98,744
2003	48,174	1.021	49,186
2004	83,416	1.031	86,002
2005	35,535	1.624	57,709
TOTAL	397,775		423,646

(2),(3) Exhibit 5.3

# CITY OF NEWTON

## WORKERS COMPENSATION INDEMNITY LOSS DEVELOPMENT FACTORS

Adjusted Cumulative Paid Losses & ALAE  
Valued As Of (Months)

Fiscal Year 12 24 36 48 60 72 84 96 108

1981	13,014							
1982	79,896							
1983	190,854							
1984	151,711							
1985	136,739							
1986	97,884							
1987	291,687							
1988	253,463							
1989	213,185							
1990	47,779							
1991	162,488							
1992	187,011							
1993	167,161							
1994	244,851							
1995	257,161							
1996	703,346							
1997	543,317							
1998	543,317							
1999	543,317							
2000	401,609							
2001	402,383							
2002	372,200							
2003	290,080							
2004	356,071							
2005	482,220							
1996	267,942							
1997	270,614							
1998	803,013							
1999	418,525							
2000	792,020							
2001	267,113							
2002	418,525							
2003	272,004							
2004	672,162							
2005	529,022							
1996	517,760							
1997	571,098							
1998	463,724							
1999	504,239							
2000	497,680							
2001	477,403							
2002	463,724							
2003	400,748							
2004	326,634							
2005	224,297							

Fiscal Year

12-24

24-36

36-48

48-60

60-72

72-84

84-96

96-108

108-120

Development Factors

Mean  
3 Yr. Mean  
5 Yr. Mean  
Best 3  
Industry  
Selected  
Cumulative

1.842	1.778	1.85	1.124	1.051	1.017	1.056	1.083	1.079	1.056
1.905	1.849	1.217	1.076	1.057	1.016	1.004	1.002	1.000	1.001
2.932	2.275	1.484	1.216	1.001	1.003	1.002	1.000	1.000	1.000
1.225	1.225	1.484	1.216	1.001	1.003	1.002	1.000	1.000	1.000
1.256	1.125	1.199	1.022	1.000	1.000	1.000	1.000	1.000	1.000
1.116	1.050	1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.063	1.025	1.050	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.037	1.015	1.031	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.022	1.010	1.020	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.012	1.005	1.014	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000

FINANCIAL RISK ANALYSTS

10/31/2005 5:55 PM  
Indemnity1



## CITY OF NEWTON

Exhibit 5.2

WORKERS COMPENSATION  
INDEMNITY  
LOSS DEVELOPMENT FACTORS

Fiscal Year	Adjusted Cumulative Paid Losses & ALAE												
	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	Valued As Of (Months)				<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
					<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>					
1978			21,834	21,834	21,834	21,834	21,834	21,834	21,834	21,834	21,834	21,834	21,834
1979		48,767	73,098	110,017	132,877	144,057	145,357	145,357	145,357	145,357	145,357	145,357	145,357
1980	35,296	54,135	73,763	94,286	110,435	110,435	110,435	110,435	110,435	110,435	110,435	110,435	110,435
1981	20,529	27,144	33,759	40,405	42,640	44,884	47,119	49,354	51,589	53,824	56,059	58,294	60,529
1982	106,029	122,456	140,818	159,999	160,887	160,887	160,887	160,887	160,887	160,887	160,887	160,887	160,887
1983	233,090	249,208	260,364	269,481	278,497	287,513	298,111	302,775	307,239	311,703	316,167	320,631	325,295
1984	175,886	181,486	185,599	186,549	186,549	186,549	186,549	186,549	186,549	186,549	186,549	186,549	186,549
1985	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852
1986	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283
1987	296,657	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654
1988	731,742	731,742	731,742	731,742	731,742	731,742	731,803	731,803	731,803	731,803	731,803	731,803	731,803
1989	543,317	543,317	543,317	543,317	543,317	543,317	543,317	543,317	543,317	543,317	543,317	543,317	543,317
1990	402,383	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358
1991	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766
1992	372,200	372,200	372,200	372,200	372,200	372,200	372,200	372,200	372,200	372,200	372,200	372,200	372,200
1993	290,080	290,080	290,080	290,080	290,080	290,080	290,080	290,080	290,080	290,080	290,080	290,080	290,080
1994	356,071	356,071	356,071	356,071	356,071	356,071	356,071	356,071	356,071	356,071	356,071	356,071	356,071
1995	482,406	482,406	482,406	482,406	482,406	482,406	482,406	482,406	482,406	482,406	482,406	482,406	482,406
1996	272,140	272,140	272,140	272,140	272,140	272,140	272,140	272,140	272,140	272,140	272,140	272,140	272,140
Fiscal Year	<u>120-132</u>	<u>132-144</u>	<u>144-156</u>	<u>156-168</u>	<u>168-180</u>	Development Factors			<u>216-228</u>	<u>228-240</u>	<u>240-252</u>	<u>252-264</u>	
						<u>180-192</u>	<u>192-204</u>	<u>204-216</u>					
1978			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1979		1.499	1.505	1.208	1.084	1.009	1.000	1.000	1.000	1.000	1.000	1.000	
1980	1.534	1.363	1.278	1.171	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1981	1.322	1.244	1.197	1.055	1.053	1.050	1.047	1.045	1.043	1.042	1.040	1.038	
1982	1.155	1.150	1.136	1.006	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1983	1.069	1.045	1.035	1.033	1.032	1.037	1.016	1.015	1.015	1.014	1.014	1.015	
1984	1.032	1.023	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1985	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1987	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1988	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1989	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1990	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1991	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1992	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Mean	1.070	1.083	1.072	1.032	1.012	1.007	1.005	1.005	1.006	1.006	1.007	1.008	
3 Yr. Mean	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.005	1.009	
5 Yr. Mean	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.003	1.003	1.011	1.006	
Best 3	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.005	1.000	
Industry	1.007	1.005	1.005	1.004	1.004	1.003	1.004	1.003	1.003	1.003	1.005	1.000	
Selected	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Cumulative	1.005	1.004	1.003	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	

## CITY OF NEWTON

WORKERS COMPENSATION  
MEDICAL ONLY  
HISTORICAL LOSS DATA

Fiscal Year	Cumulative Paid Losses & ALAE Valued As Of (Months)										
	12	24	36	48	60	72	84	96	108	120	132
1989	16,707	23,305	23,305	23,305	23,305	23,905	23,905	23,905	23,905	23,905	23,905
1990	23,114	29,040	29,646	29,646	29,646	29,646	29,646	29,646	29,646	29,646	29,646
1991	2,960	3,346	12,650	41,187	41,187	41,187	41,187	41,187	41,187	41,187	41,187
1992	33	17,928	50,185	50,185	50,185	50,185	50,185	50,185	50,185	50,185	50,185
1993	10,419	54,025	55,048	55,048	55,048	55,048	55,048	55,048	55,048	55,048	55,048
1994	22,341	45,034	45,547	45,547	45,547	45,547	45,547	45,547	45,547	45,547	45,547
1995	22,975	30,235	30,253	30,253	30,253	30,253	30,253	30,253	30,253	30,253	30,253
1996	23,877	37,585	37,804	38,350	38,350	38,350	38,350	38,350	38,350	38,350	38,350
1997	25,033	36,553	52,993	52,993	52,993	52,993	52,993	52,993	52,993	52,993	52,993
1998	16,124	21,256	22,036	22,036	22,036	22,036	22,036	22,036	52,993		
1999	21,591	25,809	26,098	26,098	26,164	26,164	26,164				
2000	20,281	30,826	30,920	31,244	31,244	31,244					
2001	30,700	48,571	48,797	52,561	52,561						
2002	39,090	98,179	98,179	98,645							
2003	40,915	47,993	48,174								
2004	50,401	83,416									
2005	35,535										

Fiscal Year	Development Factors										
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-Ult.
1989	1.395	1.000	1.000	1.000	1.026	1.000	1.000	1.000	1.000	1.000	
1990	1.256	1.021	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1991	1.130	3.781	3.256	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1992	543.273	2.799	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1993	5.185	1.019	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1994	2.016	1.011	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1995	1.316	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1996	1.574	1.006	1.014	1.000	1.000	1.000	1.000	1.000	1.000		
1997	1.460	1.450	1.000	1.000	1.000	1.000	1.000	1.000			
1998	1.318	1.037	1.000	1.000	1.000	1.000	1.000				
1999	1.195	1.011	1.000	1.003	1.000	1.000					
2000	1.520	1.003	1.010	1.000	1.000						
2001	1.582	1.005	1.077	1.000							
2002	2.512	1.000	1.005								
2003	1.173	1.004									
2004	1.655										

Mean	35.598	1.343	1.169	1.000	1.002	1.000	1.000	1.000	1.000	1.000	
3 Yr. Mean	1.780	1.003	1.031	1.001	1.000	1.000	1.000	1.000	1.000	1.000	
5 Yr. Mean	1.688	1.005	1.018	1.001	1.000	1.000	1.000	1.000	1.000	1.000	
Best 3	1.586	1.004	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Industry	1.890	1.211	1.079	1.041	1.024	1.017	1.017	1.017	1.011	1.009	
Selected	1.575	1.010	1.020	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Cumulative	1.624	1.031	1.021	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000

## CITY OF NEWTON

Exhibit 6

### WORKERS COMPENSATION EXPOSURE INFORMATION

<u>Fiscal Year</u> (1)	<u>Covered Payroll (\$00)</u> (2)
1992	226,774
1993	233,157
1994	253,882
1995	256,823
1996	270,263
1997	282,380
1998	287,177
1999	309,695
2000	314,406
2001	322,083
2002	354,569
2003	362,190
2004	362,318
2005	365,553
2006	370,465